In the claims:

Claim 1. **(Currently amended)** A cardiovascular imaging agent comprising a radionuclide, said radionuclide being ~~associated with~~ chemically bonded to a targeting moiety comprising a component of a process involved in plaque formation, wherein the targeting moiety is selected from (i) cells, including muscle cells, macrophages, foam cells, monocytes, polymorphonuclear cells, cellular fragments and analogs thereof, (ii) colony stimulating factors, and platelet factor 4, (iii) growth factors, (iv) cytokines, interferons, and tumor necrosis factors, (v) cellular sources of energy for metabollic active plaque formation, (vi) lipids and lipid receptors, ~~and~~ or (vii) component of clotting, wherein said radionuclide is a positron emitting radionuclide selected from the following: ^{18}F, ^{68}Ga, ^{62}Cu, or radioactive isotopes of iodine.

Claims 2-7. **(Canceled)**

Claim 8. **(Previously presented)** The agent of claim 1, wherein said plaque is an atherosclerotic forming plaque.

Claim 9. **(Currently amended)** A method of imaging cardiovascular plaque formation in a mammal, comprising administering to the mammal a cardiovascular imaging agent having a radionuclide, said radionuclide being ~~associated with~~ chemically bonded to a targeting moiety comprising a component of a process involved in plaque formation, wherein the targeting moiety is selected from (i) cells, including muscle cells, macrophages, foam cells, monocytes, polymorphonuclear cells, cellular fragments and analogs thereof, (ii) colony stimulating factors, and platelet factor 4, (iii) growth factors, (iv) cytokines, interferons, and tumor necrosis factors, (v) cellular sources of energy for metabollic active plaque formation, (vi) lipids and lipid receptors, and (vii) component of clotting cascades, wherein said radionuclide is a positron emitting radionuclide selected from the following: ^{18}F, ^{68}Ga, ^{62}Cu, or radioactive isotopes of iodine.

Claim 10. **(Original)** The method of claim 9, wherein the method detects a cardiovascular lesion in a mammal, said method comprising the steps of administering to the mammal said imaging agent, detecting the spatial distribution of said agent accumulated in the mammal's cardiovascular system, wherein a detected accumulation of said agent in a region which is different from the detected accumulation of said agent in other regions is indicative of a lesion.

Claim 11. (**Previously presented**) The method of claim 10, wherein said cardiovascular lesion is an atherosclerotic forming lesion.

Claim 12. (**Currently amended**) A kit for cardiovascular imaging, comprising a supply of the imaging agent or a precursor of the imaging agent having a radionuclide, said radionuclide being ~~associated with~~ chemically bonded to a targeting moiety comprising a component of a process involved in plaque formation, wherein the targeting moiety is selected from (i) cells, including muscle cells, macrophages, foam cells, monocytes, polymorphonuclear cells, cellular fragments and analogs thereof, (ii) colony stimulating factors, and platelet factor 4, (iii) growth factors, (iv) cytokines, interferons, and tumor necrosis factors, (v) cellular sources of energy for metabollic active plaque formation, (vi) lipids and lipid receptors, and (vii) component of clotting cascades, wherein said radionuclide is a positron emitting radionuclide selected from the following: ^{18}F, ^{68}Ga, ^{62}Cu, or radioactive isotopes of iodine.

Claims 13-18. (**Canceled**)